



*Groundwater Monitoring Report
Fourth Quarter 2015
Gunderson LLC
Portland, Oregon*

Prepared for:
Gunderson LLC

March 14, 2016
1935-11



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Carmen R. Owens

**Carmen Owens
Staff Scientist**



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Gary Walvatne

**Gary Walvatne, R.G.
Senior Associate Geologist**

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1.0 Introduction

This report was prepared by Apex Companies, LLC (Apex) to document the fourth quarter 2015 groundwater monitoring event at the Gunderson LLC (Gunderson) facility in Portland, Oregon (the Facility).

The Facility covers approximately 63 acres and 4,000 lineal feet of river frontage along the Willamette River between river mile 8.5 and 9.2 (Figure 1). The Facility is located at 4350 NW Front Avenue in Portland, Oregon and is bordered by Lakeside Industries on the northwest, NW Front Avenue and the Burlington Northern Santa Fe (BNSF) Railway on the southwest, Georgia-Pacific Corporation on the southeast, and the Willamette River on the northeast (Figure 2). The Facility is divided into three areas defined as follows (from downriver to upriver): Area 1, Area 2, and the Schnitzer ASD Yard (referred to in some historical reports as Area 3). Areas 1 and 2 are primarily used for manufacturing, while the Schnitzer ASD Yard is primarily used as a storage yard.

In 2004, a groundwater extraction system was installed at Area 1 to treat volatile organic compounds (VOCs) in groundwater. In 2013, Apex performed a capture zone evaluation of the extraction well and concluded: (1) VOC concentrations in groundwater at Area 1 had decreased to levels less than or only slightly exceeding Oregon Department of Environmental Quality (DEQ) screening criteria; and (2) the extraction well has not had a significant effect on groundwater concentrations. In early 2014, DEQ authorized suspension of groundwater treatment at Area 1, contingent on Area 1 groundwater concentrations remaining stable to decreasing. The system was deactivated on July 16, 2014. The fourth quarter 2015 monitoring event was the sixth monitoring event conducted subsequent to deactivation of the groundwater treatment system.

The Gunderson groundwater monitoring program is conducted in accordance with the Oregon Department of Environmental Quality (DEQ) Voluntary Cleanup Program Agreement No. WMCVC NWR 94 01. In an email dated March 20, 2013, DEQ approved reducing the number of groundwater levels measured during the first and third quarter monitoring events to only include wells in Area 1. As a condition of deactivating the groundwater extraction system, DEQ required quarterly sampling (rather than annual) from wells MW-43 and MW-44. The current groundwater monitoring program is summarized in Table 1. The fourth quarter 2015 groundwater monitoring event was performed in accordance with Table 1.

In response to the DEQ comments on the second quarter 2015 monitoring report, dissolved metals analyses were added to the scope of the fourth quarter 2015 groundwater monitoring event. Table 1 was updated accordingly to reflect the total and dissolved metals sampling conducted during the fourth quarter 2015. In addition, total and dissolved metals analyses were added for wells MW-22 and MW-42 in Area 1 and well MW-24 in Area 2. These wells are intended to represent upgradient conditions and to be indicative of local background groundwater concentrations.

2.0 Groundwater Monitoring Procedures

The fourth quarter 2015 groundwater monitoring event was conducted between December 14, 2015 and January 20, 2016. Groundwater monitoring consisted of measuring water levels, purging and sampling groundwater, and measuring groundwater field parameters.

2.1 Groundwater Level Measurement

On December 14, 2015, depth to groundwater was measured in select Facility monitoring wells to the nearest 0.01 foot using a water level probe. Groundwater elevations are presented in Table 2 and shown on Figure 3. Field sheets and historical groundwater levels are presented in Appendices A and B, respectively.

2.2 Groundwater Sampling Methods

Groundwater monitoring wells sampled during this event were purged using a peristaltic pump, applying low-flow techniques. Field parameters (temperature, pH, electrical conductivity, oxidation reduction potential [ORP], and dissolved oxygen [DO]) were monitored continuously using a flow-through cell. Purging was considered complete when the selected field parameters (temperature, pH, electrical conductivity) had stabilized for three consecutive three-minute intervals. The groundwater sampling field sheets are included in Appendix A. Groundwater sampling parameters are summarized in Table 3. Immediately after purging, groundwater samples were collected from the well into laboratory-supplied sample containers, marked with identifying information, and maintained under chain-of-custody protocols. Field duplicate samples were collected from wells MW-17 and MW-72.

2.3 Groundwater Analyses

The groundwater samples were submitted to Apex Laboratories, located in Tigard, Oregon, for analysis. The samples were analyzed for one or more of the following:

- VOCs by U.S. Environmental Protection Agency (EPA) Method 8260B;
- Total petroleum hydrocarbons as diesel (TPHd) by Northwest Method NWTPH-Dx;
- Polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270 SIM;
- Phthalates by EPA Method 8270;
- Polychlorinated biphenyls (PCBs) by EPA Method 8082; and
- Total and dissolved metals by EPA 6000/7000 series Methods.

The laboratory reports and a data quality review are provided in Appendix C.

3.0 Results Summary for Fourth Quarter 2015

Groundwater samples were collected from 35 monitoring wells and groundwater levels were measured in 37 monitoring wells during the fourth quarter 2015 monitoring event. Those wells are listed in Table 1. Analytical results are discussed in four sections; one section for each area of the Facility (Area 1, Area 2, and Schnitzer ASD Yard) and a separate section for upgradient wells. Monitoring wells MW-22, MW-24, and MW-42 are upgradient wells and discussion of the results from these three wells is not included with the other areas of the Facility.

For comparison purposes, groundwater analytical data were compared to the Portland Harbor Joint Source Control Strategy (JSCS) screening level values (SLVs; DEQ/EPA 2005) and US Environmental Protection Agency (EPA) preliminary remediation goals (PRGs; EPA, 2015). The SLVs and PRGs were established to identify concentrations of hazardous substances that may pose a risk to sediment quality in the Willamette River. The actual risk that hazardous substances in groundwater (or other media) pose to the river sediment is dependent on a number of factors, including: (1) potential migration to the river; (2) current sediment quality; (3) persistence of the chemical in the environment; and (4) mass flux to the river. Therefore, an SLV or PRG exceedance does not necessarily indicate a significant risk to the river.

The risks that constituents in groundwater pose to the Willamette River are discussed in detail in the Supplemental Groundwater Source Control Evaluation Report (Apex, 2013).

3.1 Deviations from the Sampling Plan

Wells MW-62 and WEX-60 previously had transducers installed that were used to monitor groundwater levels while the groundwater extraction system was operating. The equipment that secured the transducers in place rusted and could not be removed to access the wells. Further work on the transducers could not be performed without confined space entry. These issues were addressed during sampling for the fourth quarter 2015 by installing PVC extensions to the well casings for WEX-60 and MW-62. The transducer was removed from WEX-60, while only a cap required removal from MW-62, in order to install the well casing extensions. The well extensions allowed normal sampling of the wells during the fourth quarter monitoring event.

During the extension of the well casings in WEX-60 and MW-62, the confined-space contractor used a solvent-based adhesive to secure the PVC casing, as well as anti-seize lubricant to loosen rusted metal fittings on MW-62. Concentrations of acetone and 2-butanone were detected in both the WEX-60 and MW-62 samples collected on December 23, 2015. In addition, the MW-62 sample included a low concentration of oil. However, neither acetone nor 2-butanone have been detected historically in well WEX-60 (there is no historical data for MW-62). Detections of acetone and 2-butanone can be indicators of solvent-based products in the groundwater. Due to the possibility of presence of solvent-based adhesive and oil in the groundwater, wells WEX-60 and MW-62 were re-sampled on January 20, 2016. Prior to re-sampling of WEX-60 and MW-62, the well caps were removed to allow the escape of any volatile chemicals still in the

casing air space, and three casing volumes of water were pumped from each well. Upon re-sampling, the concentrations of acetone, 2-butanone, and oil were determined to be below detection limits in wells WEX-60 and MW-62.

3.2 Groundwater Elevation and Gradient

Groundwater elevations from the Gunderson Facility are presented in Table 2 and shown on Figure 3. Historical groundwater elevation data are included as Appendix B. Measurements of groundwater elevations are conducted across the site in the shortest time possible to limit the influence of the Willamette River level, particularly the tidal cycle, on the groundwater potentiometric surface beneath the Gunderson Facility. Typically, a team of two field staff members collects a single round of groundwater level measurements.

Groundwater elevations during the fourth quarter 2015 event are generally consistent with historical measurements, with the exception of wells MW-43 and MW-81, which were found to have water levels that were approximately 20 feet higher and 10 feet lower, respectively, than nearby wells. In order to determine whether the water levels in MW-43 and MW-81 were due to an unknown problem in each well, a round of groundwater level measurements was conducted on February 24, 2016 to narrow the range of possibilities for a root cause of the water levels in these two wells. A team of two field staff members collected water level measurements, beginning with the wells closer to the Willamette River and proceeding to the wells near Front Street. In addition, the water level in each well was measured twice in separate measurements; i.e., the tape was removed from the well after the first measurement and a second separate measurement was made. This effort determined that there were no permanent issues with the wells and that the likely cause of the high water levels in MW-43 and MW-81 was an error that was associated with technique, equipment, the well (e.g., the probe was hung up at a casing joint), or some combination of these. These water levels will be monitored for changes in future sampling events.

As noted above in Section 3.1, wells WEX-60 and MW-62 were modified to allow greater ease of sampling. The timing of the well modifications was such that the top-of-casing elevations were not surveyed for these wells. Consequently, these wells were not available for water level measurements and inclusion in the water level mapping illustrated in Figure 3.

Also, well MW-53 was not used for contouring on Figure 3 because it is screened at a depth from 90.5 to 101 feet below ground surface (ft bgs), which is 40 to 50 feet deeper than the screens in the other Area 1 wells. As the water level in MW-53 is generally a couple feet higher than in adjacent well MW-52 (screened from 38 to 48 ft bgs), it is thought that MW-53 is screened in a different hydrogeologic regime than the other Area 1 wells.

Based on the measured water levels and calculated groundwater elevations, the groundwater at the facility generally flows in a northerly to northwesterly direction toward the Willamette River.

3.3 Area 1 and Lakeside Industries Property

Sixteen monitoring wells and one extraction well are included in this discussion of Area 1 and the adjacent Lakeside Industries property results. The samples were analyzed for VOCs. In addition, the samples from wells WEX-60 and MW-62 were analyzed for TPHd. Results for the fourth quarter 2015 groundwater monitoring event for Area 1 are presented in Table 4.

Three VOCs (i.e., 1,1-dichloroethene [1,1-DCE], tetrachloroethene [PCE], and trichloroethene [TCE]) were detected at concentrations that exceed the corresponding JSCS SLV or EPA PRG. 1,1-DCE was detected above the PRG (7 micrograms per liter [$\mu\text{g}/\text{L}$]) in four wells (MW-21, MW-27, MW-49, and MW-71) at a maximum concentration of 47.9 $\mu\text{g}/\text{L}$ (in well MW-27). PCE was detected above the PRG (0.24 $\mu\text{g}/\text{L}$) in five wells (MW-21, MW-27, MW-49, MW-70, and MW-71) at a maximum concentration of 4.51 $\mu\text{g}/\text{L}$ (in well MW-27). TCE was detected above the PRG (0.6 $\mu\text{g}/\text{L}$) in three wells (MW-39, MW-43, and MW-50), at a maximum concentration of 1.25 $\mu\text{g}/\text{L}$ (in well MW-50). Based on a review of historical analytical data (included in Appendix D), VOC concentrations in Area 1 groundwater are generally stable or decreasing. Concentrations of VOCs in MW-36 (that were trending upward in the last monitoring event) were non-detect during the fourth quarter event.

The groundwater analytical data collected during the fourth quarter 2015 monitoring event indicate that groundwater conditions have not significantly changed following deactivation of the groundwater treatment system. Concentrations of VOCs were all below detection limits in extraction well WEX-60. Concentrations of VOCs in MW-62, adjacent to the extraction well, and downgradient monitoring wells MW-43 and MW-44 were generally below the PRG screening levels. The concentration of TCE in MW-43, however, was 0.650 $\mu\text{g}/\text{L}$, which is slightly above the PRG of 0.6 $\mu\text{g}/\text{L}$.

3.4 Area 2

Six monitoring wells are included in this discussion of results in Area 2. The samples were analyzed for total and dissolved metals, PAHs, phthalates, PCBs, and/or VOCs. Results for the fourth quarter 2015 groundwater monitoring event for Area 2 are presented in Tables 5 and 6. Five metals (i.e., arsenic, cadmium, copper, lead, and manganese) were detected at concentrations that exceed the corresponding JSCS SLV or EPA PRG. Arsenic was detected above the PRG (0.018 $\mu\text{g}/\text{L}$) in six Area 2 wells for total concentration at a maximum concentration of 28.8 $\mu\text{g}/\text{L}$ (in well MW-66) and in six wells for dissolved concentration at a maximum concentration of 8.67 $\mu\text{g}/\text{L}$ (MW-66). Copper was detected above the SLV (2.7 $\mu\text{g}/\text{L}$) for total concentration in MW-66 at 4.79 $\mu\text{g}/\text{L}$. Total lead was detected above the SLV (0.54 $\mu\text{g}/\text{L}$) in three wells at a maximum concentration of 2.77 $\mu\text{g}/\text{L}$ (well MW-66). Manganese was detected above the PRG (50 $\mu\text{g}/\text{L}$) for total concentration in five wells with a maximum concentration of 3,840 $\mu\text{g}/\text{L}$ (well MW-81) and dissolved concentration in five wells with a maximum concentration of 3,920 $\mu\text{g}/\text{L}$ (well MW-81). Metals concentrations in Area 2 are consistent with concentrations in MW-24, the well located upgradient in Area 2. All VOCs, phthalates, PCBs, and PAHs were either below SLVs or non-detect with the exception of chloroform and

TCE in well SMW-12 and acenaphthene in well MW-81. Analytical results for Area 2 are generally consistent with previous data.

3.5 Schnitzer ASD Yard (Area 3)

Groundwater samples were collected from nine monitoring wells at the Schnitzer ASD Yard. The samples were analyzed for total and dissolved metals, TPHd, PAHs, and/or phthalates. Results for the second quarter 2015 groundwater monitoring event for the Schnitzer ASD Yard are presented in Table 7. Metals (including antimony [1 well], arsenic [9 wells], cadmium [3 wells], lead [5 wells], manganese [9 wells], and zinc [2 wells]), were detected above JSCS SLVs. Well MW-79 has multiple metals that are above the SLVs, but the trends for most metals are generally decreasing, with the exception of lead and manganese. The concentrations of metals in well MW-79 will be monitored closely to assess the concentration trend. The concentrations of metals in the Schnitzer ASD Yard are generally consistent with concentrations in the upgradient wells (see discussion in Section 3.6).

TPHd, PAHs, and phthalates were either below screening levels or non-detect in all wells, with the exception of well MW-73, where one PAH, 2-methylnaphthalene, was above the SLV. Analytical results for the Schnitzer ASD Yard are generally consistent with previous data.

3.6 Upgradient Wells

MW-22, MW-24, and MW-42 were selected as upgradient wells to represent the local background of groundwater coming onto the Facility. MW-22 and MW-42 were analyzed for VOCs. There were no concentrations of VOCs detected above the PRG or SLVs. All three wells were analyzed for total and dissolved metals. Four metals were detected at concentrations above PRGs and SLVs. These include arsenic, cadmium, lead, and manganese. Total arsenic was detected above the PRG (0.018 µg/L) in the three wells with a maximum concentration of 1.51 µg/L in well MW-24. Dissolved arsenic was above the PRG in MW-22 and MW-42 with a maximum concentration of 1.01 in well MW-22. Total cadmium was only detected in MW-24 and was above the SLV (0.094 µg/L) with a concentration of 0.278 µg/L. Dissolved cadmium was not detected in upgradient wells. Total lead was detected in MW-22 and MW-24, and was above the SLV (0.54 µg/L) in MW-24 with a concentration of 2.51 µg/L. Dissolved lead was not detected in upgradient wells. Total and dissolved manganese were detected in the upgradient wells. Total manganese was above the PRG (50 µg/L) in MW-22 and MW-24 with a maximum concentration of 6,720 µg/L in MW-24. Dissolved manganese was above the PRG in MW-24 with a concentration of 1,820 µg/L.

While zinc was not detected above the screening levels in any upgradient wells, the total zinc concentration in MW-42 was below the Method Reporting Limit (MRL) (4.00 µg/L), while dissolved zinc was detected at 5.91 µg/L. The laboratory was consulted for possible reasons that dissolved zinc was detected, but was not detected as a fraction of the total zinc. The laboratory confirmed that the concentration of total zinc was less than the

MRL, as well as the Method Detection Limit (MDL) (2.00 µg/L). The laboratory offered three possible explanations for the apparent discrepancy between total and dissolved zinc concentrations:

- Randomness of sampling. As the total and dissolved zinc samples were collected as different samples, it is possible that the sample concentrations vary between the samples.
- Calibration tolerance. The laboratory analytical equipment is allowed to have a calibration tolerance of 20-25 percent, which may yield a significant difference in concentrations, particularly at the part per billion level of analysis.
- Filter contamination. The laboratory has observed an occasional, random increase in metals (e.g., zinc, copper, and cobalt) that is attributed to the filters used to prepare the dissolved metals sample. The effect is not consistent from sample to sample, but appears to be related to contaminants in the filter material. The laboratory confirmed that there is only one vendor for the filters; an alternative is not presently available.

The laboratory indicated that calibration tolerance and, in particular, filter contamination are the most likely causes of the discrepancy between the total and dissolved concentrations of zinc in MW-42.

4.0 Summary

The fourth quarter 2015 groundwater monitoring event occurred on December 14-18 and 23, 2015, as well as a resampling event on January 20, 2016 at two wells. Depths to groundwater and analytical results were generally consistent with historical observations.

The fourth quarter 2015 monitoring event was the sixth monitoring event performed following deactivation of the Area 1 groundwater treatment system. VOC concentrations in some Area 1 wells minimally exceeded SLVs and PRGs, but VOC concentrations in Area 1 groundwater are consistent with or slightly lower than concentrations measured before deactivation of the groundwater treatment system. These data indicate that deactivation of the groundwater treatment system has not adversely affected groundwater quality at the Facility.

Adequate data have been collected to confirm that deactivation of the groundwater treatment system has not resulted in any significant change in groundwater conditions and additional groundwater monitoring specifically performed to evaluate conditions following deactivation (i.e., collection of samples from wells MW-43 and MW-44) is no longer necessary. We propose returning to the previous schedule of annual monitoring of wells MW-43 and MW-44.

As part of future source control evaluation work, the trends in groundwater concentrations will be more fully developed using statistical evaluation techniques.

5.0 References

Apex Companies, 2013. Supplemental Groundwater Source Control Evaluation, Gunderson LLC, Portland, Oregon. April 16, 2013.

DEQ/EPA, 2005. Portland Harbor Joint Source Control Strategy. December 2005.

DEQ, 2013. Gunderson Groundwater Monitoring. Electronic Communication. March 20, 2013.

DEQ, 2014. Q4 2013 Groundwater Monitoring Report, Gunderson Facility, ECSI# 1155. May 15, 2014.

US Environmental Protection Agency, 2015. Primary Remediation Goals for the Portland Harbor Superfund Site, Remedial Action Objective 4, Ecological Receptors for Groundwater, July 29, 2015.

Table 1
2015 Groundwater Monitoring Program
Gunderson LLC
Portland, Oregon

Area	Monitoring Well	Total Depth (feet)	Screened Interval (feet)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		VOCs	TPHd	PAHs	Phthalates	PCBs	Total Metals	Dissolved Metals	Total Mercury	Dissolved Mercury
				gauge	sample	gauge	sample	gauge	sample	gauge	sample									
Area 1	MW-19	30.00	15-30	X	--	X	--	X	--	X	X	X					X	X		
	MW-21	35.00	20-35	X	--	X	X	X	--	X	X	X								
	MW-22	35.00	20-35	X	--	X	--	X	--	X	X	X								
	MW-27	44.00	34-44	X	--	X	X	X	--	X	X	X								
	MW-36	52.50	47-52	X	X	X	X	X	X	X	X	X								
	MW-39	49.50	39-49	X	--	X	X	X	--	X	X	X								
	MW-40	51.50	45-51	X	--	X	--	X	--	X	--									
	MW-41	51.50	45-51	X	--	X	--	X	--	X	X	X								
	MW-42	56.30	45.8-55.8	X	--	X	--	X	--	X	X	X					X	X	X	X
	MW-43	63.70	56-61	X	X	X	X	X	X	X	X	X								
	MW-44	57.50	47.5-57.5	X	X	X	X	X	X	X	X	X								
	MW-49	32.00	23-33	X	--	X	X	X	--	X	X	X								
	MW-50	50.00	40-50	X	--	X	--	X	--	X	X	X								
	MW-51	41.00	36-41	X	X	X	X	X	X	X	X	X								
	MW-52	48.00	38-48	X	X	X	X	X	X	X	X	X								
	MW-53	101.50	90.5-101	X	--	X	--	X	--	X	X	X								
	MW-62	50.70	32-42	X	X	X	X	X	X	X	X	X								
	MW-70	37.00	22-37	X	X	X	X	X	X	X	X	X								
	MW-71	49.00	39-49	X	--	X	X	X	--	X	X	X								
	WEX-60	54.00	30-50	X	X	X	X	X	X	X	X	X								
Area 2	MW-17	34.50	19.5-34.5	--	--	X	X	--	--	X	X	X					X	X	Q4	
	MW-23	35.00	20-35	--	--	X	--	--	--	X	X						X	X		
	MW-24	35.00	20-35	--	--	--	--	--	--	X	X						X	X		
	MW-66	41.00	20-40	--	--	X	X	--	--	X	X						X	X	Q4	
	MW-81	35.00	20-35	--	--	X	--	--	--	X	X						X	X		
	SMW-11	40.00	20-40	--	--	X	--	--	--	X	X						X	X		
	SMW-12	40.00	20-40	--	--	X	--	--	--	X	X						X	X		
Schnitzer ASD Yard (Area 3)	MW-10	20.00	5-20	--	--	X	X	--	--	X	X	X					X	Q4	X	Q4
	MW-11	21.50	6.5-21.5	--	--	X	--	--	--	X	X						X	X	X	X
	MW-14	30.00	15-30	--	--	X	--	--	--	X	--									
	MW-72	30.00	15-30	--	--	X	X	--	--	X	X						X	Q4	X	Q4
	MW-73	30.00	15-30	--	--	X	X	--	--	X	X						X	Q4	X	Q4
	MW-74	36.50	20-35	--	--	X	X	--	--	X	X						X	Q4	X	Q4
	MW-76	36.50	20-35	--	--	X	--	--	--	X	X						X	X	X	X
	MW-77	36.50	20-35	--	--	X	X	--	--	X	X						X	Q4	X	Q4
	MW-79	15.00	5-15	--	--	X	X	--	--	X	X						X	Q4	X	Q4
	MW-80	20.00	5-20	--	--	X	--	--	--	X	X						X	X	X	X

Notes:

1. VOCs = volatile organic compounds by EPA 8260B.
2. TPHd = total petroleum hydrocarbons, diesel and heavy oil range by NWTPHDx with silica gel clean up.
3. PAHs = polycyclic aromatic hydrocarbons by EPA 8270 SIM.
4. Phthalates by EPA 8270 SIM.
5. PCBs = polychlorinated biphenyls by EPA 8082.
6. Metals = antimony, arsenic, barium, cadmium, chromium, copper, lead, manganese, nickel, and zinc by EPA 6000/7000 series.
7. Mercury by EPA 7470A.
8. Q4 = sampled in the Q4 monitoring event only.

Table 2
Groundwater Elevation Data – Fourth Quarter 2015
Gunderson LLC
Portland, Oregon

Well ID	Measurement Date	Top of Casing Elevation (feet MSL) ¹	Depth to Groundwater (feet)	Groundwater Elevation (feet MSL)
Area 1				
MW-19	12/14/2015	34.86	25.70	9.16
MW-21	12/14/2015	35.28	22.80	12.48
MW-22	12/14/2015	37.81	24.50	13.31
MW-27	12/14/2015	35.01	22.55	12.46
MW-36	12/14/2015	36.82	23.57	13.25
MW-39	12/14/2015	37.04	23.90	13.14
MW-40	12/14/2015	39.49	26.29	13.20
MW-41	12/14/2015	36.57	23.43	13.14
MW-42	12/14/2015	38.49	25.22	13.27
MW-43	12/14/2015	40.34	7.30	33.04
MW-44	12/14/2015	34.78	24.85	9.93
MW-49	12/14/2015	35.52	22.68	12.84
MW-50	12/14/2015	40.05	27.05	13.00
MW-51	12/14/2015	34.01	21.00	13.01
MW-52	12/14/2015	34.41	22.56	11.85
MW-53	12/14/2015	34.28	21.85	12.43
MW-62	12/23/2015	NS	22.20	NA
MW-70	12/14/2015	35.56	22.65	12.91
MW-71	12/14/2015	36.36	23.28	13.08
WEX-60	12/23/2015	NS	17.61	NA
Area 2				
MW-17	12/14/2015	34.87	22.70	12.17
MW-23	12/14/2015	35.99	22.52	13.47
MW-24	12/14/2015	32.23	13.30	18.93
MW-66	12/14/2015	34.47	23.04	11.43
MW-81	12/14/2015	32.63	29.77	2.86
SMW-11	12/14/2015	34.73	24.25	10.48
SMW-12	12/14/2015	32.86	20.06	12.80
Schnitzer ASD Yard (Area 3)				
MW-10	12/14/2015	32.39	7.41	24.98
MW-11	12/14/2015	33.16	5.00	28.16
MW-14	12/14/2015	33.24	21.38	11.86
MW-72	12/14/2015	33.88	21.90	11.98
MW-73	12/14/2015	32.06	17.35	14.71
MW-74	12/14/2015	32.83	20.43	12.4
MW-76	12/14/2015	36.55	25.04	11.51
MW-77	12/14/2015	34.67	21.73	12.94
MW-79	12/14/2015	32.85	22.63	10.22
MW-80	12/14/2015	33.91	11.60	22.31

Notes:

1. feet MSL = Feet relative to mean sea level.

2. NS = Not surveyed

3. NA = Not applicable

Table 3
Groundwater Field Parameters – Fourth Quarter 2015
Gunderson LLC
Portland, Oregon

Well ID	Measurement Date	pH	Temperature (°C)	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)
Area 1						
MW-19	12/4/2012	6.46	12.83	439	4.38	42.7
	12/12/2013	6.62	11.80	358	0.71	-66.2
	12/18/2014	--	12.42	1950	0.69	68.8
	12/15/2015	6.64	12.19	553	0.21	-155.6
MW-21	6/11/2014	6.81	18.00	763	0.46	-72.9
	12/18/2014	6.67	14.88	2693	0.51	61.2
	6/30/2015	6.89	18.79	309	2.17	28.7
	12/15/2015	6.54	14.58	826	0.29	25.0
MW-22	12/4/2012	5.93	12.86	86	7.88	107.4
	12/13/2013	6.12	12.65	104	5.60	-88.3
	12/18/2014	6.92	12.49	964	4.57	164.3
	12/15/2015	6.86	12.72	86	6.12	14.6
MW-27	6/11/2014	6.23	16.83	571	0.70	173.0
	12/18/2014	--	14.17	2691	0.50	38.4
	6/30/2015	6.96	16.71	47	4.37	63.0
	12/15/2015	6.22	13.83	738	0.38	-11.9
MW-36	3/9/2015	6.12	14.90	313	1.62	82.7
	6/30/2015	6.89	16.89	206	0.97	24.2
	9/16/2015	6.66	15.75	363	0.82	182.3
	12/17/2015	6.75	13.36	38	5.25	-112.3
MW-39	6/11/2014	6.25	17.88	349	0.74	172.2
	12/17/2014	6.70	14.00	2096	1.54	195.9
	7/2/2015	6.49	16.64	171	4.74	2.1
	12/15/2015	6.23	13.70	496	1.23	-104.3
MW-41	12/4/2012	5.82	14.45	461	1.21	119.5
	12/16/2013	6.02	12.87	447	1.75	-35.6
	12/23/2014	--	14.28	1168	5.29	-19.3
	12/17/2015	6.03	13.58	389	2.13	-112.6
MW-42	12/4/2012	6.80	13.47	2145	5.62	67.7
	12/17/2013	6.39	13.55	1973	2.11	72.9
	12/18/2014	7.10	13.70	1846	1.96	145.3
	12/15/2015	6.38	450	13.06	450	-59.3
MW-43	3/16/2015	6.17	13.98	85.6	2.44	96.3
	7/6/2015	6.59	18.38	522	1.45	18.3
	9/16/2015	7.33	18.42	297	9.89	11.5
	12/16/2015	6.19	13.24	408	1.32	-133.9
MW-44	3/16/2015	6.20	13.70	218	4.20	84.1
	6/26/2015	9.00	19.77	87	2.01	-23.2
	9/14/2015	7.75	16.51	703	3.35	28.3
	12/16/2015	7.17	13.37	1071	0.96	-186.2
MW-49	6/11/2014	6.48	17.77	454	0.57	-65.3
	12/17/2014	7.62	14.05	2068	0.86	163.0
	6/30/2015	7.67	16.80	202	1.51	47.0
	12/15/2015	6.28	14.14	626	0.39	76.0
MW-50	12/4/2012	6.25	13.54	295	4.98	83.2
	12/17/2013	6.76	13.35	325	2.68	76.2
	12/23/2014	--	13.08	1421	3.98	-75.2
	12/16/2015	6.34	12.83	409	1.90	-164.6

Please refer to notes at end of table

Table 3
Groundwater Field Parameters – Fourth Quarter 2015
Gunderson LLC
Portland, Oregon

Well ID	Measurement Date	pH	Temperature (°C)	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)
MW-51	3/9/2015	4.15	15.70	171	2.06	87.0
	6/26/2015	7.25	18.39	76	0.82	43.1
	9/15/2015	6.32	15.00	288	1.05	133.1
	12/16/2015	7.25	13.23	150	4.39	-121.2
MW-52	3/10/2015	5.97	14.80	816	1.17	82.0
	6/30/2015	6.89	17.02	101	1.97	47.9
	9/14/2015	6.10	16.83	763	2.53	169.7
	12/15/2015	6.51	14.39	1971	0.38	-124.7
MW-53	12/4/2012	7.81	14.86	864	8.48	6.0
	12/12/2013	7.11	12.78	865	1.05	-78.1
	12/18/2014	--	13.56	2091	0.76	19.1
	12/15/2015	7.19	14.22	1074	0.47	-145.6
MW-62	3/9/2015	NM	NM	NM	NM	NM
	6/30/2015	NM	NM	NM	NM	NM
	9/14/2015	NM	NM	NM	NM	NM
	1/20/2016	7.71	14.64	338	0.62	38.2
MW-70	3/9/2015	5.95	14.60	228.5	9.10	75.3
	6/30/2015	6.94	15.50	150	7.90	-9.4
	9/14/2015	6.47	15.18	179	7.23	204.8
	12/17/2015	6.25	14.37	218	8.24	26.6
MW-71	6/11/2014	6.30	16.89	356	0.63	177.7
	12/19/2014	NM	NM	NM	NM	NM
	7/6/2015	6.46	19.17	889	4.26	27.7
	12/15/2015	6.29	14.41	702	0.27	-36.5
WEX-60	3/10/2015	NM	NM	NM	NM	NM
	6/26/2015	NM	NM	NM	NM	NM
	9/14/2015	NM	NM	NM	NM	NM
	1/20/2016	6.13	8.84	156	8.58	68.4
Area 2						
MW-17	6/12/2014	6.76	16.34	767	0.55	-125.8
	12/22/2014	--	15.45	2047	0.72	-129.8
	7/6/2015	7.20	16.41	630	0.70	-47.5
	12/17/2015	6.40	14.22	563	0.34	-152.3
MW-23	12/17/2015	5.70	12.20	240	2.64	-59.1
MW-24	12/17/2015	6.53	14.46	602	0.36	-140.2
MW-66	6/12/2014	6.73	15.89	875	0.87	-127.8
	12/22/2014	5.29	14.09	1762	0.87	-172.2
	6/30/2015	8.62	17.01	207	0.80	-20.7
	12/17/2015	6.43	13.26	923	0.45	145.5
MW-81	12/5/2012	6.81	13.70	435	0.77	19.4
	12/16/2013	6.42	13.47	655	0.91	-59.4
	12/22/2014	--	14.58	1552	0.78	-168.9
	12/17/2015	6.43	14.52	1053	0.41	-141.6
SMW-11	12/17/2015	6.61	12.30	512	0.34	-145.9
SMW-12	12/5/2012	6.76	12.96	315	1.04	3.5
	12/16/2013	6.39	12.35	601	0.83	-55.9
	12/22/2014	--	13.56	1822	0.70	-156.6
	12/17/2015	6.31	12.00	584	0.42	-153.1

Please refer to notes at end of table

Table 3
Groundwater Field Parameters – Fourth Quarter 2015
Gunderson LLC
Portland, Oregon

Well ID	Measurement Date	pH	Temperature (°C)	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)
Schnitzer ASD Yard (Area 3)						
MW-10	6/11/2014	7.29	15.65	885	0.40	-107.9
	12/19/2014	--	14.11	1804	0.50	-75.3
	6/26/2015	7.87	16.59	104	1.35	-94.8
	12/18/2015	6.54	15.51	871	0.15	-157.9
MW-11	12/5/2012	7.39	14.17	180	0.25	73.9
	12/13/2013	6.16	14.89	324	1.19	-104.4
	12/19/2014	--	14.54	2276	0.76	-13.1
	12/16/2015	6.24	12.71	298	0.21	-133.2
MW-72	6/11/2014	6.54	16.29	1270	0.57	-98.1
	12/18/2014	--	13.12	2027	0.89	-18.0
	6/26/2015	7.70	18.82	61	3.75	-85.7
	12/16/2015	6.24	13.17	1682	0.39	-161.3
MW-73	6/11/2014	6.49	15.06	199	0.50	-116.6
	12/19/2014	--	13.33	2151	1.13	-20.7
	6/26/2015	7.17	16.42	67	1.44	-68.7
	12/18/2015	6.94	1386.00	17.95	0.17	-135.1
MW-74	6/12/2014	7.40	14.40	1035	0.73	-118.1
	12/22/2014	6.91	14.07	1244	0.83	-158.0
	6/30/2015	7.51	16.03	307	1.01	-40.7
	12/16/2015	6.08	13.48	2370	0.28	-146.0
MW-76	12/5/2012	6.64	13.45	1190	1.38	25.1
	12/16/2013	6.04	13.22	1395	2.01	-55.5
	12/19/2014	--	13.52	2242	0.93	-75.3
	12/23/2015	6.18	13.12	2316	0.45	228.1
MW-77	6/12/2014	6.50	14.71	1525	0.65	-91.8
	12/19/2014	--	12.81	3078	0.77	-31.8
	6/26/2015	7.40	20.63	62	1.32	-74.9
	12/18/2015	6.42	13.78	1381	0.26	-83.6
MW-79	6/12/2014	7.40	15.68	1094	1.07	-122.9
	12/19/2014	--	11.60	2972	0.52	68.3
	6/26/2015	7.34	17.65	98	1.07	-42.1
	12/18/2015	7.48	12.48	617	0.22	-128.2
MW-80	12/5/2012	6.68	13.59	436	0.62	7.0
	12/16/2013	6.14	13.57	650	2.41	-45.6
	12/22/2014	5.84	12.61	1220	0.64	-194.0
	12/18/2015	7.30	12.01	377	0.18	-113.9

Notes:

1. Measurements are final readings recorded prior to sample collection.
2. WEX-60 sample collected from Port 1 (influent) to the groundwater extraction system well.
3. °C = degrees Celcius; µS/cm = microsiemens per centimeter; mg/L = milligrams per liter; ORP = oxidation reduction potential; mV = millivolts; NTU = nephelometric turbidity units.
4. -- No pH data due to instrument error.
5. Conductivity in some wells in December 2014 is abnormally high, possibly due to instrument error.

Table 4
 Groundwater Analytical Results – Area 1 – Fourth Quarter 2015
 Gunderson LLC
 Portland, Oregon

Well ID	Sample Date	NWTPH-Dx		Volatile Organic Compounds						
		Diesel Range	Residual Range	Chloroform	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	1,1,1-Trichloroethane	Trichloroethene
		mg/L (ppm)		Concentrations in µg/L (ppb)						
MW-19	12/4/2012	--	--	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/12/2013	--	--	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/18/2014	--	--	<1.00	<0.50	<0.50	0.300	<0.50	<0.500	0.290 J
	12/15/2015	--	--	<1.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
MW-21	6/11/2014	--	--	<1.0	18.3	12.9	<0.500	1.77	12.60	<0.500
	12/18/2014	--	--	<1.0	14.5	10.1	<0.500	2.90	6.75	0.790
	6/30/2015	--	--	<1.0	2.99	0.89	<0.500	1.47	0.56	0.640
	12/15/2015	--	--	<1.00	15.9	12.0	<0.500	1.95	6.90	0.290
MW-22	12/4/2012	--	--	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/13/2013	--	--	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/18/2014	--	--	<1.00	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/15/2015	--	--	<1.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
MW-27	6/11/2014	--	--	<1.00	13.2	17.5	<0.500	3.17	5.54	<0.500
	12/18/2014	--	--	<1.00	21.5	36.8	<0.500	4.46	9.04	0.760
	6/30/2015	--	--	<1.00	8.9	5.8	<0.500	2.84	1.55	0.690
	6/30/15 DUP	--	--	<1.00	8.95	5.7	<0.500	2.90	1.56	0.700
	12/15/2015	--	--	<1.00	26.6	47.9	<0.500	4.51	7.93	0.490
MW-36	3/9/2015 DUP	--	--	<1.00	24.1	97.0	<0.500	1.94	9.34	<0.500
	3/9/2015	--	--	<1.00	25.3	103.0	<0.500	1.88	9.61	<0.500
	6/30/2015	--	--	<1.00	<0.500	<0.500	<0.500	<0.500	0.36	<0.500
	9/16/2015	--	--	0.660 J	34.5	160	<0.500	2.13	12.6	<0.500
	12/17/2015	--	--	<1.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
MW-39	6/11/2014	--	--	<1.00	1.81	1.90	<0.500	<0.500	2.72	<0.500
	12/17/2014	--	--	<1.00	8.84	6.21	<0.500	0.480 J	5.02	0.380 J
	7/6/2015	--	--	<1.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	12/15/2015	--	--	<1.00	2.35	1.79	<0.500	<0.500	1.64	0.860
MW-41	12/4/2012	--	--	<1.0	<0.50	<0.50	<0.50	<0.50	0.63	<0.50
	12/16/2013	--	--	<1.0	<0.50	<0.50	<0.50	<0.50	0.680	<0.50
	12/23/2014	--	--	<1.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	12/17/2015	--	--	<1.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
MW-42	12/4/2012	--	--	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/17/2013	--	--	<1.0	<0.50	<0.50	<0.50	<0.50	0.960	<0.50
	12/18/2014	--	--	<1.0	3.65	3.52	<0.50	<0.50	5.28	0.360 J
	12/15/2015	--	--	<1.00	2.39	4.27	<0.500	<0.500	5.45	<0.500
EPA PRG: RAO 4 GW		--	--	--	--	7	9.9	0.24	--	0.6
JSCS SLV		--	--	0.17	47.0	--	61.0	0.12	11.0	0.17

Please refer to notes at end of table

Table 4
 Groundwater Analytical Results – Area 1 – Fourth Quarter 2015
 Gunderson LLC
 Portland, Oregon

Well ID	Sample Date	NWTPH-Dx		Volatile Organic Compounds						
		Diesel Range	Residual Range	Chloroform	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	1,1,1-Trichloroethane	Trichloroethene
		mg/L (ppm)		Concentrations in µg/L (ppb)						
MW-43	3/16/2015	--	--	<1.00	2.27	<0.500	0.530	<0.500	<0.500	<0.500
	7/6/2015	--	--	<1.00	4.81	1.82	<0.500	<0.500	2.38	0.690
	9/16/2015	--	--	<1.00	2.45	0.360	<0.500	<0.500	0.400 J	<0.500
	12/16/2015	--	--	<1.00	5.59	1.85	<0.500	<0.500	1.55	0.650
MW-44	3/16/2015	--	--	<1.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	6/30/2015	--	--	<1.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	9/14/2015	--	--	<1.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	12/16/2015	--	--	<1.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
MW-49	6/11/2014	--	--	<1.00	5.59	3.10	<0.500	<0.500	4.04	<0.500
	12/17/2014	--	--	<1.00	11.4	6.92	<5.00	0.600	6.39	0.670
	6/30/2015	--	--	<1.00	6.6	5.75	0.32	0.430	3.52	0.280
	12/15/2015	--	--	<1.00	28.2	9.67	<0.500	0.880	6.32	0.540
MW-50	12/4/2012	--	--	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	1.41
	12/17/2013	--	--	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	0.690
	12/23/2014	--	--	<1.00	<0.500	<0.500	0.450 J	<0.500	<0.500	1.66
	12/16/2015	--	--	<1.00	1.74	0.620	<0.500	<0.500	0.760	1.25
MW-51	3/9/2015	--	--	<1.00	2.39	2.23	<0.500	0.310	1.31	1.18
	6/26/2015	--	--	<1.00	4.49	2.44	<0.500	<0.500	1.92	1.03
	9/15/2015	--	--	<1.00	14.6	6.09	<0.500	0.250 J	3.57	0.970
	12/16/2015	--	--	<1.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
MW-52	3/10/2015	--	--	<1.00	1.22	5.01	<0.500	0.350	0.260	<0.500
	6/30/2015	--	--	<1.00	0.90	4.54	<0.500	0.430	0.340	<0.500
	9/14/2015	--	--	<1.00	0.330 J	0.300 J	<0.500	<0.500	<0.500	<0.500
	12/15/2015	--	--	<1.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
MW-53	12/4/2012	--	--	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/12/2013	--	--	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/18/2014	--	--	<1.00	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/15/2015	--	--	<1.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
MW-62	3/10/2015	--	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--	--
	9/14/2015	--	--	--	--	--	--	--	--	--
	1/20/2016	<0.119	<0.238	<1.00	4.23	1.00	<0.500	<0.500	<0.500	<0.500
EPA PRG: RAO 4 GW		--	--	--	--	7	9.9	0.24	--	0.6
JSCS SLV		--	--	0.17	47.0	--	61.0	0.12	11.0	0.17

Please refer to notes at end of table

Table 4
 Groundwater Analytical Results – Area 1 – Fourth Quarter 2015
 Gunderson LLC
 Portland, Oregon

Well ID	Sample Date	NWTPH-Dx		Volatile Organic Compounds						
		Diesel Range	Residual Range	Chloroform	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	1,1,1-Trichloroethane	Trichloroethene
		mg/L (ppm)		Concentrations in µg/L (ppb)						
MW-70	3/9/2015	--	--	<1.00	<0.500	<0.500	<0.500	1.01	1.43	<0.500
	6/30/2015	--	--	<1.00	<0.500	<0.500	<0.500	0.59	1.10	<0.500
	9/14/2015	--	--	<1.00	0.310 J	<0.500	<0.500	0.850	1.20	<0.500
	12/17/2015	--	--	<1.00	<0.500	<0.500	<0.500	0.602	1.27	<0.500
MW-71	6/11/2014	--	--	<1.00	18.8	23.7	<0.500	1.24	12.2	0.510
	12/18/2014	--	--	--	--	--	--	--	--	--
	7/6/2015	--	--	<1.00	26.4	41.1	<0.500	2.53	10.8	0.34
	12/15/2015	--	--	<1.00	26.2	12.3	<0.500	1.38	6.03	<0.500
WEX-60	3/10/2015	<0.260	<0.521	<1.00	7.38	4.01	<0.500	0.430	2.32	<0.500
	6/30/2015	<0.0943	<0.189	<1.00	14.60	6.32	<0.500	0.590	3.790	0.280
	9/14/2015	<0.248	<0.495	<1.00	9.26	5.19	0.270 J	<0.500	0.400 J	0.300 J
	1/20/2016	<0.119	<0.238	<1.00	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
EPA PRG: RAO 4 GW		--	--	--	7	9.9	0.24	--	--	0.6
JSCS SLV		--	--	0.17	47.0	--	61.0	0.12	11.0	0.17

Please refer to notes at end of table

Table 4
 Groundwater Analytical Results – Area 1 – Fourth Quarter 2015
 Gunderson LLC
 Portland, Oregon

Well ID	Sample Date	Metals											
		Antimony		Arsenic		Barium		Cadmium		Chromium		Copper	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
		mg/L (ppm)											
MW-19	12/4/2012	--	--	--	--	--	--	--	--	--	--	--	--
	12/12/2013	--	--	--	--	--	--	--	--	--	--	--	--
	12/18/2014	--	--	--	--	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--	--	--	--	--
MW-21	6/11/2014	--	--	--	--	--	--	--	--	--	--	--	--
	12/18/2014	--	--	--	--	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--	--	--	--	--
MW-22	12/4/2012	--	--	--	--	--	--	--	--	--	--	--	--
	12/13/2013	--	--	--	--	--	--	--	--	--	--	--	--
	12/18/2014	--	--	--	--	--	--	--	--	--	--	--	--
	12/15/2015	<1.00	<1.00	1.17	1.03	9.26	4.04	<0.200	<0.200	3.13	2.81	0.944 J	<1.00
MW-27	6/11/2014	--	--	--	--	--	--	--	--	--	--	--	--
	12/18/2014	--	--	--	--	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--	--	--	--	--
	6/30/15 DUP	--	--	--	--	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--	--	--	--	--
MW-36	3/9/2015 DUP	--	--	--	--	--	--	--	--	--	--	--	--
	3/9/2015	--	--	--	--	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--	--	--	--	--
	9/16/2015	--	--	--	--	--	--	--	--	--	--	--	--
	12/17/2015	--	--	--	--	--	--	--	--	--	--	--	--
MW-39	6/11/2014	--	--	--	--	--	--	--	--	--	--	--	--
	12/17/2014	--	--	--	--	--	--	--	--	--	--	--	--
	7/6/2015	--	--	--	--	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--	--	--	--	--
MW-41	12/4/2012	--	--	--	--	--	--	--	--	--	--	--	--
	12/16/2013	--	--	--	--	--	--	--	--	--	--	--	--
	12/23/2014	--	--	--	--	--	--	--	--	--	--	--	--
	12/17/2015	--	--	--	--	--	--	--	--	--	--	--	--
MW-42	12/4/2012	--	--	--	--	--	--	--	--	--	--	--	--
	12/17/2013	--	--	--	--	--	--	--	--	--	--	--	--
	12/18/2014	--	--	--	--	--	--	--	--	--	--	--	--
	12/15/2015	<1.00	<1.00	0.722 J	0.622 J	30.1	29.6	<0.200	<0.200	0.878 J	0.756 J	<1.00	<1.00
EPA PRG: RAO 4 GW		--	--	0.018	0.018	--	--	--	--	--	--	1,300	1,300
JSCS SLV		6	6	0.045	0.045	--	--	0.094	0.094	100	100	2.7	2.7

Please refer to notes at end of table

Table 4
 Groundwater Analytical Results – Area 1 – Fourth Quarter 2015
 Gunderson LLC
 Portland, Oregon

Well ID	Sample Date	Metals											
		Antimony		Arsenic		Barium		Cadmium		Chromium		Copper	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
		mg/L (ppm)											
MW-43	3/16/2015	--	--	--	--	--	--	--	--	--	--	--	--
	7/6/2015	--	--	--	--	--	--	--	--	--	--	--	--
	9/16/2015	--	--	--	--	--	--	--	--	--	--	--	--
	12/16/2015	--	--	--	--	--	--	--	--	--	--	--	--
MW-44	3/16/2015	--	--	--	--	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--	--	--	--	--
	9/14/2015	--	--	--	--	--	--	--	--	--	--	--	--
	12/16/2015	--	--	--	--	--	--	--	--	--	--	--	--
MW-49	6/11/2014	--	--	--	--	--	--	--	--	--	--	--	--
	12/17/2014	--	--	--	--	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--	--	--	--	--
MW-50	12/4/2012	--	--	--	--	--	--	--	--	--	--	--	--
	12/17/2013	--	--	--	--	--	--	--	--	--	--	--	--
	12/23/2014	--	--	--	--	--	--	--	--	--	--	--	--
	12/16/2015	--	--	--	--	--	--	--	--	--	--	--	--
MW-51	3/9/2015	--	--	--	--	--	--	--	--	--	--	--	--
	6/26/2015	--	--	--	--	--	--	--	--	--	--	--	--
	9/15/2015	--	--	--	--	--	--	--	--	--	--	--	--
	12/16/2015	--	--	--	--	--	--	--	--	--	--	--	--
MW-52	3/10/2015	--	--	--	--	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--	--	--	--	--
	9/14/2015	--	--	--	--	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--	--	--	--	--
MW-53	12/4/2012	--	--	--	--	--	--	--	--	--	--	--	--
	12/12/2013	--	--	--	--	--	--	--	--	--	--	--	--
	12/18/2014	--	--	--	--	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--	--	--	--	--
MW-62	3/10/2015	--	--	--	--	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--	--	--	--	--
	9/14/2015	--	--	--	--	--	--	--	--	--	--	--	--
	1/20/2016	--	--	--	--	--	--	--	--	--	--	--	--
EPA PRG: RAO 4 GW		--	--	0.018	0.018	--	--	--	--	--	--	1,300	1,300
JSCS SLV		6	6	0.045	0.045	--	--	0.094	0.094	100	100	2.7	2.7

Please refer to notes at end of table

Table 4
 Groundwater Analytical Results – Area 1 – Fourth Quarter 2015
 Gunderson LLC
 Portland, Oregon

Well ID	Sample Date	Metals											
		Antimony		Arsenic		Barium		Cadmium		Chromium		Copper	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
		mg/L (ppm)											
MW-70	3/9/2015	--	--	--	--	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--	--	--	--	--
	9/14/2015	--	--	--	--	--	--	--	--	--	--	--	--
	12/17/2015	--	--	--	--	--	--	--	--	--	--	--	--
MW-71	6/11/2014	--	--	--	--	--	--	--	--	--	--	--	--
	12/18/2014	--	--	--	--	--	--	--	--	--	--	--	--
	7/6/2015	--	--	--	--	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--	--	--	--	--
WEX-60	3/10/2015	--	--	--	--	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--	--	--	--	--
	9/14/2015	--	--	--	--	--	--	--	--	--	--	--	--
	1/20/2016	--	--	--	--	--	--	--	--	--	--	--	--
EPA PRG: RAO 4 GW		--	--	0.018	0.018	--	--	--	--	--	--	1,300	1,300
JSCS SLV		6	6	0.045	0.045	--	--	0.094	0.094	100	100	2.7	2.7

Please refer to notes at end of table

Table 4
 Groundwater Analytical Results – Area 1 – Fourth Quarter 2015
 Gunderson LLC
 Portland, Oregon

Well ID	Sample Date	Metals							
		Lead		Manganese		Nickel		Zinc	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
		mg/L							
MW-19	12/4/2012	--	--	--	--	--	--	--	--
	12/12/2013	--	--	--	--	--	--	--	--
	12/18/2014	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--
MW-21	6/11/2014	--	--	--	--	--	--	--	--
	12/18/2014	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--
MW-22	12/4/2012	--	--	--	--	--	--	--	--
	12/13/2013	--	--	--	--	--	--	--	--
	12/18/2014	--	--	--	--	--	--	--	--
	12/15/2015	0.311	<0.200	206	0.733 J	0.978 J	<1.00	13.8	4.57
MW-27	6/11/2014	--	--	--	--	--	--	--	--
	12/18/2014	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--
	6/30/15 DUP	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--
MW-36	3/9/2015 DUP	--	--	--	--	--	--	--	--
	3/9/2015	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--
	9/16/2015	--	--	--	--	--	--	--	--
	12/17/2015	--	--	--	--	--	--	--	--
MW-39	6/11/2014	--	--	--	--	--	--	--	--
	12/17/2014	--	--	--	--	--	--	--	--
	7/6/2015	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--
MW-41	12/4/2012	--	--	--	--	--	--	--	--
	12/16/2013	--	--	--	--	--	--	--	--
	12/23/2014	--	--	--	--	--	--	--	--
	12/17/2015	--	--	--	--	--	--	--	--
MW-42	12/4/2012	--	--	--	--	--	--	--	--
	12/17/2013	--	--	--	--	--	--	--	--
	12/18/2014	--	--	--	--	--	--	--	--
	12/15/2015	<0.200	<0.200	3.12	0.911 J	<1.00	<1.00	<4.00	5.91
EPA PRG: RAO 4 GW		--	--	50	50	--	--	--	--
JSCS SLV		0.54	0.54	50	50	16	16	36	36

Please refer to notes at end of table

Table 4
 Groundwater Analytical Results – Area 1 – Fourth Quarter 2015
 Gunderson LLC
 Portland, Oregon

Well ID	Sample Date	Metals							
		Lead		Manganese		Nickel		Zinc	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
		mg/L							
MW-43	3/16/2015	--	--	--	--	--	--	--	--
	7/6/2015	--	--	--	--	--	--	--	--
	9/16/2015	--	--	--	--	--	--	--	--
	12/16/2015	--	--	--	--	--	--	--	--
MW-44	3/16/2015	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--
	9/14/2015	--	--	--	--	--	--	--	--
	12/16/2015	--	--	--	--	--	--	--	--
MW-49	6/11/2014	--	--	--	--	--	--	--	--
	12/17/2014	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--
MW-50	12/4/2012	--	--	--	--	--	--	--	--
	12/17/2013	--	--	--	--	--	--	--	--
	12/23/2014	--	--	--	--	--	--	--	--
	12/16/2015	--	--	--	--	--	--	--	--
MW-51	3/9/2015	--	--	--	--	--	--	--	--
	6/26/2015	--	--	--	--	--	--	--	--
	9/15/2015	--	--	--	--	--	--	--	--
	12/16/2015	--	--	--	--	--	--	--	--
MW-52	3/10/2015	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--
	9/14/2015	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--
MW-53	12/4/2012	--	--	--	--	--	--	--	--
	12/12/2013	--	--	--	--	--	--	--	--
	12/18/2014	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--
MW-62	3/10/2015	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--
	9/14/2015	--	--	--	--	--	--	--	--
	1/20/2016	--	--	--	--	--	--	--	--
EPA PRG: RAO 4 GW		--	--	50	50	--	--	--	--
JSCS SLV		0.54	0.54	50	50	16	16	36	36

Please refer to notes at end of table

Table 4
 Groundwater Analytical Results – Area 1 – Fourth Quarter 2015
 Gunderson LLC
 Portland, Oregon

Well ID	Sample Date	Metals							
		Lead		Manganese		Nickel		Zinc	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
		mg/L							
MW-70	3/9/2015	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--
	9/14/2015	--	--	--	--	--	--	--	--
	12/17/2015	--	--	--	--	--	--	--	--
MW-71	6/11/2014	--	--	--	--	--	--	--	--
	12/18/2014	--	--	--	--	--	--	--	--
	7/6/2015	--	--	--	--	--	--	--	--
	12/15/2015	--	--	--	--	--	--	--	--
WEX-60	3/10/2015	--	--	--	--	--	--	--	--
	6/30/2015	--	--	--	--	--	--	--	--
	9/14/2015	--	--	--	--	--	--	--	--
	1/20/2016	--	--	--	--	--	--	--	--
EPA PRG: RAO 4 GW		--	--	50	50	--	--	--	--
JSCS SLV		0.54	0.54	50	50	16	16	36	36

Notes:

1. J = Result is less than the reporting limit, but greater than or equal to the detection limit.
2. -- = Not analyzed or not applicable.
3. **Bold** denotes analyte detected above reporting limit.
4. Shading denotes analyte detected above EPA PRG (or JSCS screening level if no PRG).
5. µg/L (ppb) = micrograms per liter (parts per billion).
6. mg/L (ppm) = milligrams per liter (parts per million).
7. M = RPD between primary and duplicate sample exceeded precision goal of 30%.
8. JSCS SLV = Portland Harbor Joint Source Control Strategy Screening Level Values, December 2005
9. EPA PRG = US Environmental Protection Agency Primary Remediation Goals for the Portland Harbor Superfund Site, Remedial Action Objective 4, Ecological Re

Table 5
Groundwater Analytical Results - Metals, PAHs, Phthalates, PCBs - Area 2 – Fourth Quarter 2015
Gundersen LLC
Portland, Oregon

Sample ID	MW-17												MW-23			MW-24			MW-66			EPA PRG	JSCS SLV
Sample Date	6/11/2014	6/11/2014 DUP	12/23/2014	12/23/2014 DUP	7/6/2015	12/17/2015	12/17/2015 DUP	12/17/2015	12/17/2015	6/11/2014	12/23/2014	6/30/2015	12/17/2015										
Total Metals in µg/L (ppb)																							
Antimony	Total Dissolved	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	--	--	--	--	--	--	--	6			
Arsenic	Total Dissolved	18.1	18.9	12.9	12.8	18.6	11.7	11.8	12.4	15.1	15.1	17.5	12.0	28.8	8.67	0.018	0.045						
Barium	Total Dissolved	48.2	49.5	21.3	21.5	43.2	30.6	30.9	20.4	111	116	127	60.1	135	42.3	--	--						
Cadmium	Total Dissolved	0.200 R	0.344 R	<0.200	<0.200	0.0444	0.0667 J	<0.200	<0.200	0.278	<1.00	<0.200	<0.200	<0.200	<0.200	--	--	0.094					
Chromium	Total Dissolved	1.40	1.46	<1.00	<1.00	0.711	1.00	0.844	4.07	15.8	1.02	0.856 J	<1.00	2.74	--	--	100						
Copper	Total Dissolved	<1.00	<1.00	1.51 J	<0.200	1.06	2.13	1.87	<1.00	2.54	2.96	1.67 J	1.56	4.79	--	1,300	2.7						
Lead	Total Dissolved	<0.200	<0.200	<0.200	<0.200	0.267	0.922	0.767	0.533	2.51	0.389	0.500	0.122	2.77	--	--	0.54						
Manganese	Total Dissolved	5,850	5,940	4,060	3,980	4,100	3,660	3,700	2.81	6.720	--	3,690	2,840	3,430	--	50	50						
Nickel	Total Dissolved	4.79	5.44	1.09	1.09	1.53	2.46	2.16	0.756	10.8	3.94	3.79	1.17	4.88	--	--	16						
Zinc	Total Dissolved	<4.00	<4.00	<4.00	<4.00	3.06	13.7 M	5.9 M	7.38	22.0	6.43	12.2	7.38	11.6	--	--	36						
Polycyclic Aromatic Hydrocarbons in EPA 8270 SIM in µg/L (ppb)																							
1-Methylnaphthalene	--	--	--	--	--	--	--	--	--	<0.0381	<0.151	<0.0762	<0.0762	--	--	--	--	--	--				
2-Methylnaphthalene	--	--	--	--	--	--	--	--	--	<0.0381	<0.151	<0.0762	<0.0762	--	--	0.20	--	--	--				
Acenaphthene	--	--	--	--	--	--	--	--	--	0.180	0.276	0.990	0.0956	--	--	0.20	--	--	--				
Acenaphthylene	--	--	--	--	--	--	--	--	--	<0.0190	<0.0755	<0.0381	<0.0381	--	--	0.20	--	--	--				
Anthracene	--	--	--	--	--	--	--	--	--	0.0203	<0.0755	0.0303	<0.0381	--	--	0.20	--	--	--				
Benz(a)anthracene	--	--	--	--	--	--	--	--	--	<0.0190	0.0393 J	<0.0381	<0.0381	0.0012	--	0.018	--	--	--				
Benz(a)pyrene	--	--	--	--	--	--	--	--	--	<0.0286	<0.113	<0.0571	<0.0381	0.00012	--	0.018	--	--	--				
Benz(b)fluoranthene	--	--	--	--	--	--	--	--	--	<0.0286	<0.113	<0.0571	<0.0381	0.0012	--	0.018	--	--	--				
Benz(g,h)perylene	--	--	--	--	--	--	--	--	--	<0.0190	<0.0755	<0.0381	<0.0381	--	--	0.20	--	--	--				
Benz(k)fluoranthene	--	--	--	--	--	--	--	--	--	<0.0286	<0.113	<0.0571	<0.0381	0.0013	--	0.018	--	--	--				
Chrysene	--	--	--	--	--	--	--	--	--	<0.0190	<0.0755	<0.0381	<0.0381	0.0013	--	0.018	--	--	--				
Diben(a,h)anthracene	--	--	--	--	--	--	--	--	--	<0.0190	<0.0755	<0.0381	<0.0381	0.00012	--	0.018	--	--	--				
Fluoranthene	--	--	--	--	--	--	--	--	--	<0.0190	<0.0755	<0.0381	<0.0381	--	--	0.20	--	--	--				
Fluorene	--	--	--	--	--	--	--	--	--	<0.0190	<0.0755	<0.0381	<0.0381	--	--	0.20	--	--	--				
Indeno(1,2,3-cd)pyrene	--	--	--	--	--	--	--	--	--	<0.0190	<0.0755	<0.0381	<0.0381	0.0012	--	0.018	--	--	--				
Naphthalene	--	--	--	--	--	--	--	--	--	<0.0190	<0.0755	<0.0381	<0.0381	--	--	0.20	--	--	--				
Phenanthrene	--	--	--	--	--	--	--	--	--	0.0514	<0.151	<0.0762	<0.0381	--	--	0.20	--	--	--				
Pyrene	--	--	--	--	--	--	--	--	--	0.139	0.114	<0.0381	0.0795	--	--	0.20	--	--	--				
Carbazole	--	--	--	--	--	--	--	--	--	0.0904	0.0640 J	0.0533	0.0679	--	--	0.20	--	--	3.4				
Dibenzofuran	--	--	--	--	--	--	--	--	--	<0.0286	<0.113	<0.0381	--	--	--	--	--	--	3.7				
Phthalates by EPA 8270-SIM in µg/L (ppb)																							
bis(2-Ethylhexyl)phthalate	<2.12	<2.10	<2.08	<2.08	0.297	0.641	0.386	--	--	--	--	--	--	--	--	--	--	--	2.2				
Butyl benzyl phthalate	<2.88	<2.86	<2.83	<2.83	<0.381	<0.385	<0.385	--	--	--	--	--	--	--	--	--	--	--	3				
Diethylphthalate	<2.88	<2.86	<2.83	<2.83	<0.381	<0.385	<0.385	--	--	--	--	--	--	--	--	--	--	--	3				
Dimethyl phthalate	<2.88	<2.86	<2.83	<2.83	<0.381	<0.385	<0.385	--	--	--	--	--	--	--	--	--	--	--	3				
Di-n-butyl phthalate	<2.88	<2.86	<2.83	<2.83	<0.381	<0.385	<0.385	--	--	--	--	--	--	--	--	--	--	--	3				
Di-n-octyl phthalate	<2.88	<2.86	<2.83	<2.83	<0.381	<0.385	<0.385	--	--	--	--	--	--	--	<0.0381	<0.0381	<0.0381	--	3				
Polychlorinated Biphenyls by EPA 8082 in µg/L (ppb)																							
Aroclor 1016	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.96				
Aroclor 1221	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.034				
Aroclor 1232	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.034				
Aroclor 1242	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.034				
Aroclor 1248	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.034				
Aroclor 1254	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.033				
Aroclor 1260	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.034				

Please refer to notes at end of table

Table 5
Area 2 Groundwater Analytical Results – Fourth Quarter 2015
Gunderson LLC
Portland, Oregon

Sample ID	MW-81				SMW-11				SMW-12				EPA PRG	JSCS SLV	
Sample Date	12/5/2012	12/16/2013	12/23/2014	12/17/2015	12/17/2015	12/5/2012	12/16/2013	12/23/2014	12/17/2015	12/5/2012	12/16/2013	12/23/2014	12/17/2015		
Total Metals in µg/L (ppb)															
Antimony	Total Dissolved	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.12	--	--	--	<1.00	--	6	
Arsenic	Total Dissolved	11.1	12.1	11.7	15.0	17.1	58	--	--	--	--	6.76	0.018	0.045	
Barium	Total Dissolved	67.7	73.4	92.3	139	43.0	268	--	--	--	--	63.5	--	--	
Cadmium	Total Dissolved	<1.0	<0.200	<0.200	<0.200	<0.200	<0.200	<1.12	--	--	<0.200	--	--	0.094	
Chromium	Total Dissolved	<2.0	2.51	0.811 J	1.18	0.833	2.6	--	--	--	<1.00	--	--	100	
Copper	Total Dissolved	<2.0	6.87	0.889 J	0.744	2.06	4.49	--	--	--	<1.00	--	--	2.7	
Lead	Total Dissolved	<1.0	0.878	0.278	0.333	0.811	1.14	--	--	--	<0.200	--	--	0.54	
Manganese	Total Dissolved	1,910	2,230	2,960	3,840	2,130	3,720	--	--	--	1,920	50	50		
Nickel	Total Dissolved	<2.0	2.83	1.37	3.17	2.36	2.75	--	--	--	0.922	--	--	16	
Zinc	Total Dissolved	<4.0	27.2	3.18 J	3.18	4.08	8.36	--	--	--	<4.00	--	--	36	
Polycyclic Aromatic Hydrocarbons in EPA 8270 SIM in µg/L (ppb)															
1-Methylnaphthalene	--	<0.190	<0.0377	<0.152	--	--	<0.0381	<0.0377	<0.0762	--	--	--	--	--	
2-Methylnaphthalene	<0.0748	<0.190	<0.0377	<0.152	--	--	<0.0755	<0.0381	<0.0762	--	--	--	0.20		
Acenaphthene	0.568	0.478	0.511	0.326	--	--	<0.0377	<0.0190	<0.0762	--	--	--	--	0.20	
Acenaphthylene	<0.0374	<0.00952	<0.0189	<0.0762	--	--	<0.0377	<0.0190	<0.0762	--	--	--	--	0.20	
Anthracene	<0.0374	<0.00952	0.0116 J	<0.0762	--	--	<0.0377	0.0193	0.0263	0.0196 J	--	--	--	0.20	
Benz(a)anthracene	<0.0374	<0.00952	<0.0189	<0.0762	--	--	<0.0377	<0.0190	<0.0762	--	--	0.0012	0.0012	0.018	
Benz(a)pyrene	<0.0374	<0.143	<0.0283	<0.114	--	--	<0.0377	<0.0286	<0.0283	<0.0381	--	--	--	0.0012	0.018
Benz(b)fluoranthene	<0.0748 *	<0.143	<0.0283	<0.114	--	<0.0755 *	<0.0286	<0.0283	<0.0381	--	--	0.0012	0.0012	0.018	
Benz(c,h)perylene	0.0473	<0.00952	0.0227	<0.0762	--	--	<0.0377	<0.0190	<0.0762	--	--	--	--	0.20	
Benz(k)fluoranthene	<0.0748 *	<0.143	<0.0283	<0.114	--	<0.0755 *	<0.0286	<0.0283	<0.0381	--	--	--	--	0.20	
Chrysene	<0.0374	<0.00952	<0.0189	<0.0762	--	--	<0.0377	<0.0190	<0.0762	--	--	0.0013	0.0013	0.018	
Diben(z,h)anthracene	<0.0374	<0.00952	<0.0189	<0.0762	--	--	<0.0377	<0.0190	<0.0762	--	--	0.00012	0.00012	0.018	
Fluoranthene	<0.0374	<0.00952	<0.0189	<0.0762	--	--	<0.0377	<0.0190	<0.0762	--	--	<0.0381	--	0.20	
Fluorene	<0.0374	<0.00952	<0.0189	<0.0762	--	--	<0.0377	<0.0190	<0.0762	--	--	<0.0381	--	0.20	
Indeno[1,2,3-cd]pyrene	<0.0374	<0.00952	0.0207	<0.0762	--	--	<0.0377	<0.0190	<0.0762	--	--	<0.0381	0.0012	0.018	
Naphthalene	<0.0748	<0.190	<0.0377	<0.152	--	<0.0755	<0.0381	<0.0377	<0.0762	--	--	--	--	0.20	
Phenanthrene	<0.0374	<0.00952	0.0314	<0.0762	--	--	<0.0377	<0.0190	<0.0762	--	--	<0.0381	--	0.20	
Pyrene	0.0396	<0.00952	0.0448	<0.0762	--	<0.0755	<0.0190	0.0222	<0.0381	--	--	--	--	0.20	
Carbazole	--	<0.143	<0.0283	<0.114	--	--	<0.0286	<0.0283	--	--	--	--	--	3.4	
Dibenzofuran	--	<0.0952	<0.0189	<0.0762	--	--	<0.0190	<0.0189	<0.0381	--	--	--	--	3.7	
Phthalates by EPA 8270-SIM in µg/L (ppb)															
iso(2-Ethylhexyl)phthalate	1.38 B	<10.5	<2.08	0.990	--	--	--	--	--	--	--	--	--	2.2	
Butyl benzyl phthalate	1.56 B	<14.3	<2.83	<1.52	--	--	--	--	--	--	--	--	--	3	
Diethylphthalate	<0.935	<14.3	<2.83	<1.52	--	--	--	--	--	--	--	--	--	3	
Dimethyl phthalate	<0.935	<14.3	<2.83	<1.52	--	--	--	--	--	--	--	--	--	3	
Di-n-butyl phthalate	<0.935	<14.3	<2.83	<1.52	--	--	--	--	--	--	--	--	--	3	
Di-n-octyl phthalate	<0.935	<14.3	<2.83	<1.52	--	--	--	--	--	--	--	--	--	3	
Polychlorinated Biphenyls by EPA 8082 in µg/L (ppb)															
Aroclor 1016	<0.0935	<0.0377	<0.0377	<0.0385	--	--	--	--	--	--	--	--	--	0.96	
Aroclor 1221	<0.0935	<0.0377	<0.0377	<0.0385	--	--	--	--	--	--	--	--	--	0.034	
Aroclor 1232	<0.0935	<0.0377	<0.0377	<0.0385	--	--	--	--	--	--	--	--	--	0.034	
Aroclor 1242	<0.0935	<0.0377	<0.0377	<0.0385	--	--	--	--	--	--	--	--	--	0.034	
Aroclor 1248	<0.0935	<0.0377	<0.0377	<0.0385	--	--	--	--	--	--	--	--	--	0.034	
Aroclor 1254	<0.0935	<0.0377	<0.0377	<0.0385	--	--	--	--	--	--	--	--	--	0.033	
Aroclor 1260	<0.0935	<0.0377	<0.0377	<0.0385	--	--	--	--	--	--	--	--	--	0.034	

- Notes:
1. J = Result is less than the reporting limit, but greater than or equal to the method detection limit.
 2. -- = Not analyzed or not applicable.
 3. **Bold** denotes analyte detected above reporting limit.
 4. Shading denotes analyte detected above EPA PRG (or JSCS screening level if no PRG).
 5. µg/L (ppb) = micrograms per liter (parts per billion).

Table 6

Groundwater Analytical Results - VOCs - Area 2 – Fourth Quarter 2015

Gunderson LLC

Portland, Oregon

Sample ID	MW-17							SMW-12				EPA PRG	JSCS SLV	
	Sample Date	6/11/204	6/11/2014 DUP	12/22/2014	12/22/2014 DUP	7/6/2015	12/17/2015	12/17/15 DUP	12/5/2012	12/16/2013	12/22/2014	12/17/2015		
VOCs in µg/L (ppb)														
Acetone	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20	<20.0	<20.0	<20.0	<20.0	--	1,500
Benzene	<0.250	<0.250	<0.250	<0.250	<0.250	<0.200	<0.200	<0.25	<0.250	<0.250	<0.200	<0.200	0.44	1.2
Bromobenzene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	<0.500	--	--
Bromoform	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	--
Bromochloromethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	--
Bromodichloromethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	1.1
Bromoform	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	8.5
Bromomethane	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.0	<5.00	<5.00	<5.00	<5.00	--	8.7
2-Butanone (MEK)	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10	<10.0	<10.0	<10.0	<10.0	--	7,100
n-Butylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	--
sec-Butylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	--
tert-Butylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	--
Carbon tetrachloride	<0.500	<0.500	<0.500	<0.500	<0.500	<1.00	<1.00	<0.5	<0.500	<0.500	<1.00	<1.00	--	0.51
Chlorobenzene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	<0.500	74	50
Chloroethane	<10.0	<10.0	<5.00	<5.00	<5.00	<5.00	<5.00	<5.0	<10.0	<5.00	<5.00	<5.00	--	23
Chloroform	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	0.17
Chloromethane	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.0	<5.00	<5.00	<5.00	<5.00	--	2.1
2-Chlorotoluene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	--
4-Chlorotoluene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	--
1,2-Dibromo-3-chloropropane	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.0	<5.00	<5.00	<5.00	<5.00	--	--
Dibromochloromethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	390
1,2-Dibromoethane (EDB)	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	<0.500	--	0.033
Dibromomethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	61
1,2-Dichlorobenzene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	<0.500	--	49
1,3-Dichlorobenzene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	<0.500	--	14
1,4-Dichlorobenzene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	<0.500	--	2.8
Dichlorodifluoromethane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	390
1,1-Dichloroethane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	<0.500	--	47
1,2-Dichloroethane (EDC)	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	<0.500	--	0.73
1,1-Dichloroethene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	<0.500	--	--
cis-1,2-Dichloroethene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	9.38	2.46	8.04	6.86	9.9	590	
trans-1,2-Dichloroethene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	0.86	<0.500	0.570	0.578	--	110	
1,2-Dichloropropane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<1.0	<0.500	<0.500	<0.500	<0.500	--	0.97
1,3-Dichloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	--
2,2-Dichloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	--
1,1-Dichloropropene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	--
cis-1,3-Dichloropropene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	0.055
trans-1,3-Dichloropropene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	<1.00	--	0.055

Please refer to notes at end of table

Table 6
Groundwater Analytical Results - VOCs - Area 2 – Fourth Quarter 2015
Gunderson LLC
Portland, Oregon

Sample ID	MW-17							SMW-12				EPA PRG	JSCS SLV
	Sample Date	6/11/204	6/11/2014 DUP	12/22/2014	12/22/2014 DUP	7/6/2015	12/17/2015	12/17/15 DUP	12/5/2012	12/16/2013	12/22/2014	12/17/2015	
VOCs in µg/L (ppb)													
Ethylbenzene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	68	7.3
Hexachlorobutadiene	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.0	<5.00	<5.00	<5.00	--	0.86
2-Hexanone	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10	<10.0	<10.0	<10.0	--	99
Isopropylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	--	660
4-Isopropyltoluene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	--	--
4-Methyl-2-pentanone (MiBK)	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10	<10.0	<10.0	<10.0	--	170
Methyl tert-butyl ether (MTBE)	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	--	37
Methylene chloride	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.0	<5.00	<5.00	<5.00	--	8.9
Naphthalene	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.0	<2.00	<2.00	<2.00	--	0.2
n-Propylbenzene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	--	--
Styrene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	--	100
1,1,1,2-Tetrachloroethane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	--	2.5
1,1,2,2-Tetrachloroethane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	--	0.33
Tetrachloroethene (PCE)	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	0.24	0.12
Toluene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	57	9.8
1,2,3-Trichlorobenzene	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.0	<2.00	<2.00	<2.00	--	--
1,2,4-Trichlorobenzene	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.0	<2.00	<2.00	<2.00	--	8.2
1,1,1-Trichloroethane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	--	11
1,1,2-Trichloroethane	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	--	1.2
Trichloroethene (TCE)	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	17.4	2.90	16.2	8.74	0.6	0.17
Trichlorofluoromethane	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.0	<2.00	<2.00	<2.00	--	1,300
1,2,3-Trichloropropane	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	--	0.0095
1,2,4-Trimethylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	--	--
1,3,5-Trimethylbenzene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	--	--
Vinyl chloride	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	0.022	0.015
m,p-Xylene	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00	10,000	1.8
o-Xylene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5	<0.500	<0.500	<0.500	10,000	13

Notes:

1. J = Result is less than the reporting limit, but greater than or equal to the detection limit.
 2. -- = Not analyzed or not applicable.
 3. **Bold** denotes analyte detected above reporting limit.
 4. Shading denotes analyte detected above EPA PRG (or JSCS screening level if no PRG).
 5. µg/L (ppb) = micrograms per liter (parts per billion).
 6. VOCs = volatile organic compounds.
 7. JSCS SLV = Portland Harbor Joint Source Control Strategy Screening Level Values, December 2005
 8. EPA PRG = US Environmental Protection Agency Primary Remediation Goals for the Portland Harbor Superfund Site, Remedial Action Objective 4, Ecological Receptors for Groundwater, July 29, 2015
- Draft Tables

Table 7
 Schnitzer ASD Yard (Area 3) Groundwater Analytical Results – Fourth Quarter 2015
 Gunderson LLC
 Portland, Oregon

Sample ID	MW-74				MW-76				MW-77				MW-79				EPA PRG	JSCS SLV	
Sample Date	6/11/2014	12/22/2014	6/30/2015	12/16/2015	12/5/2012	12/16/2013	12/19/2014	12/23/2015	6/11/2014	12/19/2014	6/26/2015	12/18/2015	6/11/2014	12/19/2014	6/26/2015	12/18/2015			
Total Metals in µg/L (ppb)																			
Antimony	Total	<1.00	1.58	<1.00	<1.00	<1.0	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00	490	22.3	77.5	30.1	--	6	
	Dissolved	--	--	--	<1.00	--	--	<1.00	--	--	--	0.644 J	--	--	--	12.1			
Arsenic	Total	3.28	1.64	2.79	10.6	13.8	12.6	11.3	10.9	9.39	12.7	14.5	5.08	5.48	1.11	1.42	0.800 J	0.018	0.045
	Dissolved	--	--	--	--	--	--	--	1.44	--	--	-	3.07	--	--	--	<1.00		
Barium	Total	98.2	97.4	95.1	254	281	180	220	282	145	157	141	81.7	256	207	230	135	--	--
	Dissolved	--	--	--	87.7	--	--	--	94.2	--	--	-	47.2	--	--	--	131		
Cadmium	Total	<0.200	<0.200	<1.00	<0.200	<1.0	<0.2	0.0444 J	<0.200	0.200	<0.200	0.0778	<0.200	0.322	0.400	<0.200	0.111 J	--	0.094
	Dissolved	--	--	--	<0.200	--	--	<0.200	--	--	--	<0.200	--	--	--	<0.200			
Chromium	Total	1.76	<1.00	<1.00	1.29	<2.0	3.57	0.911 J	1.91	3.81	0.956 J	0.811	0.767 J	3.50	0.744 J	<1.00	0.956 J	--	100
	Dissolved	--	--	--	0.622 J	--	--	--	0.533	--	--	-	<1.00	--	--	--	<1.00		
Copper	Total	1.29	0.800 J	0.644	<1.00	2.42	1.30	<1.00	1.90	2.33	0.567 J	0.544	2.00	8.92	9.18	0.556	5.97	1,300	2.7
	Dissolved	--	--	--	<1.00	--	--	1.09	--	--	-	<1.00	--	--	--	0.544 J			
Lead	Total	<0.200	<0.200	0.278	<0.200	<1.0	0.400	0.133 J	0.644	0.478	0.178 J	0.311	0.289	7.81	6.42	2.88	9.04	--	0.54
	Dissolved	--	--	--	0.156 J	--	--	<0.200	--	--	--	<0.200	--	--	--	0.678			
Manganese	Total	3,780	3,480	3,880	1,400	1,350	1,050	1,490	1,500	1,450	1,590	1,500	1,520	359	444	573	434	50	50
	Dissolved	--	--	--	1,410	--	--	1,470	--	--	--	1,530	--	--	--	422			
Mercury	Total	<0.0800	<0.0800	<0.0800	<0.0800	<0.08	<0.08	<0.0888	<0.0880	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	<0.0800	--	0.77
	Dissolved	--	--	--	<0.0800	--	--	<0.0800	--	--	--	<0.0800	--	--	--	<0.0800			
Nickel	Total	2.18	2.99	1.27	3.98	6.59	5.89	3.42	4.92	2.37	1.20	1.21	1.29	13.7	11.7	2.9	2.38	--	16
	Dissolved	--	--	--	3.67	--	--	3.90	--	--	-	1.03	--	--	--	1.79			
Zinc	Total	5.98	36.2	3.86	21.6 J	4.27	<4.0	3.03 J	34.1	<4.00	2.92 J	2.97	2.66 J	736	141	11.2	14.2	--	36
	Dissolved	--	--	--	5.99	--	--	8.99 B	--	--	--	5.06	--	--	--	14.2			
NWTPH-Dx in mg/L (ppm)																			
Diesel Range	<0.236	<0.236	0.373	<0.189	--	--	--	--	<0.238	<0.236	1.38	0.577	<0.236	<0.236	0.363	0.248	--	--	
Residual Range	<0.472	<0.472	<0.189	<0.377	--	--	--	--	<0.476	<0.472	<0.189	<0.377	<0.472	<0.472	<0.189	<0.377	--	--	
Polyyclic Aromatic Hydrocarbons in EPA 8270 SIM in µg/L (ppb)																			
1-Methylnaphthalene	--	--	--	--	--	--	--	--	--	--	--	--	0.0198 J	<0.151	<0.151	<0.152	--	--	
2-Methylnaphthalene	--	--	--	--	--	--	--	--	--	--	--	--	<0.0385	<0.151	<0.151	<0.152	--	0.20	
Acenaphthene	--	--	--	--	--	--	--	--	--	--	--	--	0.0328	<0.0755	<0.0755	<0.0762	--	0.20	
Acenaphthylene	--	--	--	--	--	--	--	--	--	--	--	--	<0.0192	<0.0755	<0.0755	<0.0762	--	0.20	
Anthracene	--	--	--	--	--	--	--	--	--	--	--	--	0.0418	0.0877	0.0457	<0.0762	--	0.20	
Benz(a)anthracene	--	--	--	--	--	--	--	--	--	--	--	--	<0.0192	<0.0755	<0.0755	<0.0762	0.0012	0.018	
Benz(a)pyrene	--	--	--	--	--	--	--	--	--	--	--	--	<0.0288	<0.113	<0.113	<0.114	0.0012	0.018	
Benz(b)fluoranthene	--	--	--	--	--	--	--	--	--	--	--	--	<0.0288	<0.113	<0.113	<0.114	0.0012	0.018	
Benz(g,h,i)perylene	--	--	--	--	--	--	--	--	--	--	--	--	<0.0192	<0.0755	<0.0755	<0.0762	--	0.20	
Benz(k)fluoranthene	--	--	--	--	--	--	--	--	--	--	--	--	<0.0288	<0.113	<0.113	<0.114	0.0013	0.018	
Chrysene	--	--	--	--	--	--	--	--	--	--	--	--	<0.0192	<0.0755	<0.0755	<0.0762	0.0013	0.018	
Diben(a,h)anthracene	--	--	--	--	--	--	--	--	--	--	--	--	<0.0192	<0.0755	<0.0755	<0.0762	0.0012	0.018	
Fluoranthene	--	--	--	--	--	--	--	--	--	--	--	--	<0.0192	<0.0755	<0.0755	<0.0762	--	0.20	
Fluorene	--	--	--	--	--	--	--	--	--	--	--	--	0.0234	<0.0755	<0.0755	<0.0762	--	0.20	
Indeno(1,2,3-c,d)pyrene	--	--	--	--	--	--	--	--	--	--	--	--	<0.0192	<0.0755	<0.0755	<0.0762	0.0012	0.018	
Naphthalene	--	--	--	--	--	--	--	--	--	--	--	--	0.0591	<0.151	0.0889	<0.152	--	0.20	
Phenanthrene	--	--	--	--	--	--	--	--	--	--	--	--	0.0214	<0.0755	<0.0755	<0.0762	--	0.20	
Pyrene	--	--	--	--	--	--	--	--	--	--	--	--	<0.0192	<0.0755	<0.0755	<0.0762	--	0.20	
Carbazole	--	--	--	--	--	--	--	--	--	--	--	--	<0.0288	<0.113	<0.113	<0.114	--	3.4	
Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	--	<0.0192	<0.0755	<0.0755	<0.0762	--	3.7	

Please refer to notes at end of table

Table 7
Schnitzer ASD Yard (Area 3) Groundwater Analytical Results – Fourth Quarter 2015
Gunderson LLC
Portland, Oregon

Sample ID	MW-80				EPA PRG	JSCS SLV
Sample Date	12/5/2012	12/16/2013	12/23/2014	12/18/2015		
Total Metals in µg/L (ppb)						
Antimony Total	<1.0	<1.0	<1.0	<1.00	–	6
Antimony Dissolved	–	–	–	<1.00	–	–
Arsenic Total	4.23	10.6	3.62	4.39	0.018	0.045
Arsenic Dissolved	–	–	–	1.49	–	–
Barium Total	67.9	87.5	86.9	111	–	–
Barium Dissolved	–	–	–	55.3	–	–
Cadmium Total	<1.0	<0.2	<0.2	0.144 J	–	0.094
Cadmium Dissolved	–	–	–	<0.200	–	–
Chromium Total	<2.0	3.71	0.544 J	1.58	–	100
Chromium Dissolved	–	–	–	<1.00	–	–
Copper Total	<2.0	40.6	1.46 J	8.29	1,300	2.7
Copper Dissolved	–	–	–	<1.00	–	–
Lead Total	<1.0	5.98	1.56	11.0	–	0.54
Lead Dissolved	–	–	–	<0.200	–	–
Manganese Total	1,600	3,190	956	994	50	50
Manganese Dissolved	–	–	–	945	–	–
Mercury Total	<0.08	<0.08	<0.0800	<0.0800	–	0.77
Mercury Dissolved	–	–	–	<0.0800	–	–
Nickel Total	<2.0	2.78	0.889	2.13	–	16
Nickel Dissolved	–	–	–	1.41	–	–
Zinc Total	<4.0	38.8	10.3	70.0	–	36
Zinc Dissolved	–	–	–	10.7	–	–
NWTPH-Dx in mg/L (ppm)						
Diesel Range	–	–	–	–	–	–
Residual Range	–	–	–	–	–	–
Polycyclic Aromatic Hydrocarbons in EPA 8270 SIM in µg/L (ppb)						
1-Methylaphthalene	<0.0748	<0.151	<0.0377	<0.0762	–	–
2-Methylaphthalene	<0.0748	<0.151	<0.0377	<0.0762	–	0.20
Acenaphthene	0.0511	0.298	0.0484	0.019 J	–	0.20
Acenaphthylene	<0.0374	<0.0755	<0.0189	<0.0381	–	0.20
Anthracene	<0.0374	<0.0755	0.0109 J	<0.0381	–	0.20
Benz(a)anthracene	<0.0374	<0.0755	<0.0189	<0.0381	0.0012	0.018
Benz(a)pyrene	<0.0374	<0.113	<0.0283	<0.0381	0.00012	0.018
Benz(b)fluoranthene	<0.0748 *	<0.113	<0.0283	<0.0381	0.0012	0.018
Benz(g,h)perylene	<0.0374	<0.0755	<0.0189	<0.0381	–	0.20
Benz(k)fluoranthene	<0.0748 *	<0.113	<0.0283	<0.0381	0.0013	0.018
Chrysene	<0.0374	<0.0755	<0.0189	<0.0381	0.0013	0.018
Dibenzo(a,h)anthracene	<0.0374	<0.0755	<0.0189	<0.0381	0.00012	0.018
Fluoranthene	<0.0374	<0.0755	0.0192	0.019 J	–	0.20
Fluorene	<0.0374	<0.0755	0.0106 J	<0.0381	–	0.20
Indeno(1,2,3-c,d)pyrene	<0.0374	<0.0755	<0.0189	<0.0381	0.0012	0.018
Naphthalene	<0.0748	<0.151	<0.0189	<0.0762	–	0.20
Phenanthrene	<0.0374	0.158	0.0188 J	<0.0381	–	0.20
Pyrene	<0.0374	<0.0755	0.0432	0.0610	–	0.20
Carbazole	–	<0.113	<0.0283	<0.0381	–	3.4
Dibenzofuran	–	<0.0755	<0.0189	<0.0381	–	3.7

Please refer to notes at end of table

Table 7
 Groundwater Analytical Results – Schnitzer ASD Yard - Fourth Quarter 2015
 Gunderson LLC
 Portland, Oregon

Sample ID	MW-10				MW-11				MW-72				MW-73				EPA PRG	JSCS SLV
Sample Date	6/11/2014	12/19/2014	6/26/2015	12/18/2015	12/5/2012	12/13/2013	12/19/2014	12/16/2015	6/11/2014	12/19/2014	12/19/2014 DUP	6/26/2015	12/16/2015	12/16/2015 DUP	6/11/2014	12/19/2014	6/26/2015	12/18/2015
Phthalates by EPA 8270-SIM in µg/L (ppb)																		
bis(2-Ethylhexyl)phthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.2
Butyl benzyl phthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3
Diethylphthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3
Dimethyl phthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3
Di-N-Butyl phthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3
Di-N-Octyl phthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3
Polychlorinated Biphenyls by EPA 8082 in µg/L (ppb)																		
Aroclor 1016	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.96
Aroclor 1221	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.034
Aroclor 1232	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.034
Aroclor 1242	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.034
Aroclor 1248	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.034
Aroclor 1254	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.033
Aroclor 1260	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.034

Please refer to notes at end of table

Table 7
 Schnitzer ASD Yard (Area 3) Groundwater Analytical Results – Fourth Quarter 2015
 Gunderson LLC
 Portland, Oregon

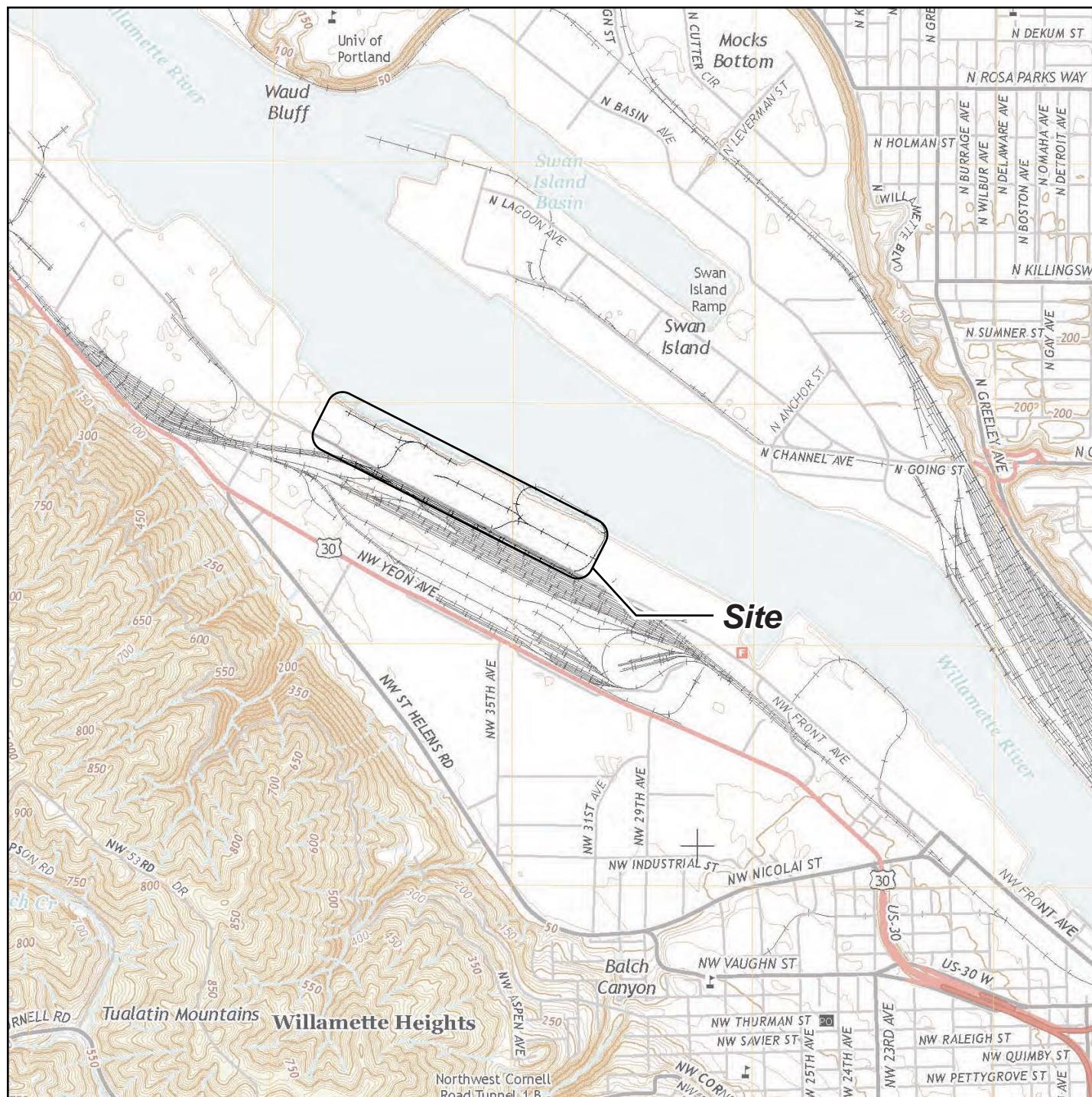
Sample ID	MW-74				MW-76				MW-77				MW-79				EPA PRG	JSCS SLV
Sample Date	6/11/2014	12/22/2014	6/30/2015	12/16/2015	12/5/2012	12/16/2013	12/19/2014	12/23/2015	6/11/2014	12/19/2014	6/26/2015	12/18/2015	6/11/2014	12/19/2014	6/26/2015	12/18/2015		
Phthalates by EPA 8270-SIM in µg/L (ppb)																		
Bis(2-Ethylhexyl)phthalate	--	--	--	--	<0.0935	<0.0392	--	--	--	--	--	--	<2.12	<8.30	--	<1.52	--	2.2
Butyl benzyl phthalate	--	--	--	--	<0.0935	<0.0392	--	--	--	--	--	--	<2.88	<11.3	--	<1.52	--	3
Diethylphthalate	--	--	--	--	<0.0935	<0.0392	--	--	--	--	--	--	<2.88	<11.3	--	<1.52	--	3
Dimethyl phthalate	--	--	--	--	<0.0935	<0.0392	--	--	--	--	--	--	<2.88	<11.3	--	<1.52	--	3
Di-N-Butyl phthalate	--	--	--	--	<0.0935	<0.0392	--	--	--	--	--	--	<2.88	<11.3	--	<1.52	--	3
Di-N-Octyl phthalate	--	--	--	--	<0.0935	<0.0392	--	--	--	--	--	--	<2.88	<11.3	--	<1.52	--	3
Polychlorinated Biphenyls by EPA 8082 in µg/L (ppb)																		
Aroclor 1016	<0.0377	<0.0377	--	<0.0392	<0.0935	<0.0392	<0.0381	<0.0381	--	--	--	--	<0.0381	--	--	--	--	0.96
Aroclor 1221	<0.0377	<0.0377	--	<0.0392	<0.0935	<0.0392	<0.0381	<0.0381	--	--	--	--	<0.0381	--	--	--	--	0.034
Aroclor 1232	<0.0377	<0.0377	--	<0.0392	<0.0935	<0.0392	<0.0381	<0.0381	--	--	--	--	<0.0381	--	--	--	--	0.034
Aroclor 1242	<0.0377	<0.0377	--	<0.0392	<0.0935	<0.0392	<0.0381	<0.0381	--	--	--	--	<0.0381	--	--	--	--	0.034
Aroclor 1248	<0.0377	<0.0377	--	<0.0392	<0.0935	<0.0392	<0.0381	<0.0381	--	--	--	--	<0.0381	--	--	--	--	0.034
Aroclor 1254	<0.0377	<0.0377	--	<0.0392	<0.0935	<0.0392	<0.0381	<0.0381	--	--	--	--	<0.0381	--	--	--	--	0.033
Aroclor 1260	<0.0377	<0.0377	--	<0.0392	<0.0935	<0.0392	<0.0381	<0.0381	--	--	--	--	<0.0381	--	--	--	--	0.034

Please refer to notes at end of table

Table 7
Schnitzer ASD Yard (Area 3) Groundwater Analytical Results – Fourth Quarter 2015
Gunderson LLC
Portland, Oregon

Sample ID	MW-80				EPA PRG	JSCS SLV
	Sample Date	12/5/2012	12/16/2013	12/23/2014		
Phthalates by EPA 8270-SIM in µg/L (ppb)						
bis(2-Ethylhexyl)phthalate	--	--	--	--	--	2.2
Butyl benzyl phthalate	--	--	--	--	--	3
Diethylphthalate	--	--	--	--	--	3
Dimethyl phthalate	--	--	--	--	--	3
Di-N-Butyl phthalate	--	--	--	--	--	3
Di-N-Octyl phthalate	--	--	--	--	--	3
Polychlorinated Biphenyls by EPA 8082 in µg/L (ppb)						
Aroclor 1016	--	--	--	--	--	0.96
Aroclor 1221	--	--	--	--	--	0.034
Aroclor 1232	--	--	--	--	--	0.034
Aroclor 1242	--	--	--	--	--	0.034
Aroclor 1248	--	--	--	--	--	0.034
Aroclor 1254	--	--	--	--	--	0.033
Aroclor 1260	--	--	--	--	--	0.034

Notes:
 1. J = Result is less than the reporting limit, but greater than or equal to the detection limit.
 2. -- = Not analyzed or not applicable.
 3. Bold denotes analyte detected above reporting limit.
 4. Shading denotes analyte detected above EPA PRG (or JSCS screening level if no PRG).
 5. µg/L (ppb) = micrograms per liter (parts per billion).
 6. mg/L (ppm) = milligrams per liter (parts per million).
 7. * = Reporting limit provided by the lab was found to be half the detection limit.
 8. B = Analyte detected in blank between half the detection limit and the reporting limit.
 9. JSCS SLV = Portland Harbor Joint Source Control Program Screening Level.
 10. EPA PRG = US Environmental Protection Agency



Note: Base map prepared from USGS 7.5-minute quadrangle of Portland, OR, dated 2014 as provided by USGS.gov.

0 2,000 4,000

Approximate Scale in Feet



Site Location Map

Fourth Quarter 2015 Groundwater Monitoring Report
Gunderson LLC
Portland, Oregon



APEX Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	I935-II
January 2016	

Figure
I

